the last few years in the vicinity of London and other large towns. At the same time, market-gardening and the growth of grapes, tomatoes and cucumbers under glass have increased enormously, and the production of flowers for market has attained proportions undreamt of by our predecessors, and unthought of even a dozen years ago. Some of those who are among the most successful of these market-growers have been farmers, but farmers possessed of a power of adapting themselves to circumstances denied to many of their fellows. It is curious also, but none the less true, that many of the most successful market-growers—men who send in grapes to Covent Garden by the ton—were not originally either gardeners or farmers. They followed some other occupation, but, deeming it advisable, they altered their plans, took to market gardening, at first on a small scale, but gradually increasing till they became the proprietors of the vast establishments which are now to be seen in every direction round London and in the vicinity of large towns. These men are very shrewd men of business, and they are specialists confining themselves strictly to the cultivation, on an enormous scale, of one or two subjects only. They are not much troubled with principles—of course we are using the word in its scientific meaning!—but they have natural intelligence enough to accumulate experience rapidly, and wit enough to make the most of its application. The private gardeners of this country grow fruit which cannot be excelled, and barely rivalled in any country on the globe; but the cost of production, though by no means lost sight of, is not of such vital moment to them as it is to the market-grower, who has to make his living out of his business.

Putting on one side these two classes of fruit-growers, the market specialists and the gentlemen's gardeners, who both grow fruit well, there remains another class, the largest in numbers, the most widely scattered, and, we fear we must add, the most deficient, alike in principles and in practice. They are neglectful of the one, and unable to appreciate the value of the other. Yet this is the class that is suffering the most severely from agricultural depression, and the one for whose benefit fruit culture is prescribed. It is, however, pretty clear that little advance can be expected in the case of the present generation; it is to the younger generation now coming on that we must look for the results of technical education and technical training that are now more or less available. To these the work before us will be full of suggestions.

Over a large area of the United States fruit culture is carried on to an extent that is hardly realisable here, and it is "much more of a business" than it is with us. The author gives advice as to the locality and climatal conditions under which success may be confidently hoped for, deals with the methods of tillage, cultivation and manuring, and enumerates the most suitable varieties for particular purposes. The best modes of picking, grading, packing and sending to market are discussed. On the whole we find more of the practice than of the principles in this book; but it is so full of information and so replete with suggestion that we shall not cavil at its title, but recommend it to thoughtful cultivators who will be able to adapt it to their own uses—a process rendered easier by the table of contents and index with which the volume is provided.

OUR BOOK SHELF.

Masonry Dams from Inception to Completion, including numerous Formulæ, form of Specification and Tender, Pocket Diagram of Forces, &c. By C. F. Courtney, M.Inst.C.E. Pp. 103 + 33. Appendix. (London: Crosby Lockwood and Son, 1897.)

THIS book purports to be written for civil and mining engineers, but it is difficult to understand what purpose it is intended to serve. The author very correctly states in his preface that it is not an exhaustive treatise. The book is not sufficiently elementary for students, and contains practically nothing that a waterworks engineer of any experience would not be acquainted with. As regards its use by mining engineers, there is no special reference to the use of masonry dams for mining purposes, or examples given where masonry dams have been used for this purpose.

A scientific treatise may be valuable as a record of the views and experience of an author who has himself been largely concerned in designing and carrying out works of the nature dealt with. This book cannot come under this head, as from the description given on the title-page, it appears that until recently the author had only filled the office of assistant engineer to an Engineering Company and in the City Surveyor's office, Manchester. A treatise may also be of service where the author, having a practical knowledge of the subject with which he deals, collects together and puts into readable form theories, facts and descriptions of works scattered about in scientific proceedings and in the engineering journals. Such a work on the subject here dealt with would be of value, as giving examples of masonry dams which have been constructed in this and other countries, with illustrations of the sections and profiles adopted, and an account of the materials used in the construction. Such information is, however, conspicuous by its absence in the present volume, the only examples given being those of the Quaker Bridge and the Bouzey dams. Even the Vyrnwy dam for the Liverpool water supply, which during its construction excited a very large amount of attention and controversy, is only incidentally referred to.

The chapters on construction and calculations of stability contain some useful information, but nothing that is original or that has not been already as well told in books already in existence, and there are misprints in some of the figures which might prove very misleading if made use of.

It is at present the practice for those engaged in questions of water supply to use as units of measurement acres and square miles as areas, inches for rainfall, and gallons or cubic feet for quantities. The author, however, makes a free use of the metric system, and give a formula for what he terms "simplification of calculation," the units of which are expressed in centimetres and square and cubic metres. In other parts of the book the measurements and quantities are sometimes given in metric, and in other parts in English measures, and in one place the result of kilogrammes per cubic metre is given in pounds per cubic foot.

Biblioteca di Scienze Moderne, No. 1. *Africa: Antropologia della Stirpe Camitica.* By Giuseppe Sergi. Pp. 426. (Turin: Bocca, 1897.)

PROF. SERGI is an anthropologist whose views differ widely from those of other writers on the science, who, he complains, have down to the present left the subject in a state of chaos. In the present work he seeks to apply an improved method to the study of a particular section of mankind, viz. the Hamites of Africa. In subdividing the human race, Prof. Sergi depends on purely physical characters, discarding linguistic facts as untrustworthy as indications of affinity. He draws a broad distinction between what he terms the internal and external physical

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characters, the former relating to the bony skeleton—particularly the skull—while the latter include such secondary characters as the colour of the skin, form of the hair, &c. He holds that the former are persistent, and that even in the case of a mixture of races they are not modified, but rather that the type of one or other of the parent stocks is maintained. The external characters are subject to modification from the influence of environment and other causes, so that the only trustworthy criterion of race is supplied by the internal.

Having in the body of the work examined in detail the various groups of Hamites in Africa, the author discusses in the final chapter the position occupied by them in the scheme of classification. Their internal characters show, he holds, a decided unity of type, which corresponds also with that found among the peoples of South Europe, already studied by him in a previous work. He therefore places the African Hamites with the South Europeans (and possibly the Semites) in one group, which he considers entitled to rank as a *species*, the word being understood in the sense of an animal group with fundamental characters not common to other groups. To it he applies the term "Eurafrican," but in a different sense to that in which it is employed by Brinton, Flower and Keane. Prof. Sergi's whole system thus rests on the supposed permanence of one set of characters, which is unlikely to be accepted as proved without further evidence, but the book is suggestive and valuable for the mass of facts which it brings together. It is abundantly illustrated with portraits of the different Hamitic types.

The A.B.C. of the X-Rays. By William H. Meadowcroft. Pp. 189. (London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd.)

"The main object of this book," says the author, "is to present to the reader a practical explanation of apparatus and methods employed in producing and utilising the X-rays." To introduce the subject, there is a chapter in which various properties of light and electricity are described for the benefit of the general reader, to whom lenses and photography and the electric current are mysterious things. Following this is a brief mention of the apparatus used for exciting vacuum tubes, and then come chapters on induction, induction coils, contact breakers and condensers, and high frequency apparatus. There is a chapter on influence machines, and in it we have the usual descriptions of positive and negative electricity, with diagrams of their distribution upon an electrophorus in various stages; the attractions and repulsions of positive and negative are also traced in detail in the account of the Holtz machine. Eventually (Chapter ix.) we arrive at "The Crookes' tube," and are informed how Prof. Elihu Thomson, "as early as January 1896," found after an "exhaustive series of experiments," that the form of tube known as the focus tube was the best for Röntgen ray work. We also learn that Mr. Shallenberger and Mr. Scribner used this standard form of tube early in 1896, but nothing is said of the prior use of the focus tube by Mr. Herbert Jackson in this country. Mr. Edison is given "the credit of making the practical device known as the Fluoroscope," to the description of which a chapter is devoted. Probably Mr. Edison would not himself claim much credit for the very obvious extension of Prof. Röntgen's original observations involved in the construction of the fluoroscope. Moreover, the instrument is practically the same as the cryptoscope described by Prof. Salvioni at the beginning of February 1896.

The remaining short chapters of the book deal with the sources of excitation of vacuum tubes, manipulation of apparatus, practical suggestions, and photographic plates and developers.

Though published in London, the book is evidently an American production.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* Nature. *No notice is taken of anonymous communications.*]

The Corona Spectrum.

In your article on the approaching solar eclipse (page 393, paragraph 2), reference is made to the apparent absence of the corona line, 1474 K, from the chromosphere and prominences. I would like to point out that occasionally this line is clearly seen reversed in metallic prominences; and that the form of the prominence, generally a very small one, can be made out with the widened slit as in the other chromosphere lines. Such an instance is recorded by Fenyi, who has published a drawing of the prominence as seen in the lines 6677, C, and 1474 K; the height as measured in the last-named line being 33″ ("Astronomy and Astro-physics," xi. 432, 1892).

Prominences of 1474 light very rarely reach this altitude above the limb, but the writer has several times noted small metallic prominences reversing the corona line; and during 1895 (a year of great relative frequency) the line was recorded "bright" in the chromosphere twelve times in 134 days of observation; always in the spot latitudes, and at the very base of the chromosphere, never in the coronal region above. Although not therefore truly coronal in this sense, these reversals may possibly have formed the bases of the bright coronal streamers which emanate from the spot zones during a maximum spot period.

With regard to the H and K radiations, the evidence now seems conclusive that these lines were not present in the corona of 1893, and it may be assumed that the lines photographed by Deslandres during this eclipse, with slit spectroscopes, were due to atmospheric diffusion of the brilliant chromosphere radiations, as suggested by the writer at the time the results were published (Nature, xlviii. 268, 1893). The relative displacements measured by Deslandres on opposite sides of the solar equator would seem, therefore, merely to prove a rotation of the *chromosphere*, not of the corona.

J. Evershed.

August 29.

The late Earthquake in India.

The following extract from a letter just received from my son, who is at present in Assam, investigating the effects of the recent earthquake, may be of interest. In communicating it to Nature, he wishes it to be understood that his remarks on the cause of the event are but tentative and subject to revision on further information which is being collected by his colleagues on the Survey.

J. D. La Touche.

Stokesay, Craven Arms, August 18.

"*Shillong, July* 23.

"You will, no doubt, have been greatly interested in hearing of this earthquake, though from the accounts that have been telegraphed home you will not have got much information about it. All this talk of railways disappearing, and whole villages being swallowed up, is very far beyond the facts; though, indeed, things are bad enough. The whole of the damage was done by the first great shock, which lasted in these parts about two minutes. After that there were a number of other shocks, estimated at between 300 and 400, in the first twenty-four hours, but none of them nearly so violent as the first. The ground certainly was fissured in many places, and a large quantity of sand and mud was thrown out; but this is a secondary effect of the earthquake, and happens only in loose soil or in the alluvium of the valleys. Such fissures occur near river-banks and such-like places, and are due to the forward movement of the soil where no mass exists in front of the wave to carry on its motion, somewhat analogous to the forward movement of waves of water when they reach the shore. The fissures are quite superficial, and the sand and water is merely jerked out of them, of course during the actual progress of the shock only. The statement that sand and mud are constantly spurted out, is quite misleading. These fissures were studied by Dr. Oldham in the Cachar earthquake of 1869, when he found out the cause of them. The loss of life has been very small: only one child at Dhubri and a few at Goalpara, where one of these fissures opened under one side of the bazaar, and filled the street and houses with sand. The river there only rose eight feet, and did not reach the bazaar itself. A

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